



Division of High Energy Physics

Non-Accelerator Physics Projects at DOE

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Non-Accelerator-based, Astrophysics, and Cosmology Experiments at DOE

Recent Developments

- Many interdisciplinary approaches to issues in particle physics, astrophysics, and cosmology are emerging.
- Trend is towards large-scale efforts from underground/ice/sea to ground level, to space.
- National Laboratories have become involved in many projects – scientific personnel, technical expertise, engineering, and project management.
- Inter-agency cooperation increasing.

General Topics

Proton Decay

Neutrino Oscillations – Atmospheric, Solar, Reactor

Neutrino-less Double Beta Decay

Dark Energy from Distant Supernova Studies

Dark Matter Searches (WIMPs, Axions)

Highest Energy Cosmic Rays

High Energy Gamma Rays, GRBs, AGNs

UHE Neutrino Astronomy





Non-Accelerator Physics at DOE

Field is Proposal Driven

- No special program solicitations or AO's.
- Response to scientific direction of the community.

(SAGENAP)

- Serves as a coordinated scientific review of proposals in this area.
- All projects reviewed including those from the labs.
- Additional external mail reviews obtained by agencies.
- In some cases requiring specific expertise, special panels are convened (e.g. AMS, SNAP).
- Internal agency reviews (technical, cost, schedule, management) before proceeding with funding.

Inter-Agency Cooperation

- Increasing and becoming more common.
- Manageable. Complications go as $(\# \text{ of agencies})^2$





DOE High Energy and Nuclear Physics Projects in Non-Accelerator Physics

ON-GOING

Soudan II (Analysis)
MACRO (Analysis)
Milagro (w/NSF)
GRANITE
SNO (Mostly NP)
SDSS (FNAL only)
SuperK/K2K
AMANDA-II (LBNL/NSF)
SAGE (LANL/NP)
Axion-I (LLNL)

UNDERWAY

Pierre Auger (w/NSF)
KamLAND (w/NP)
GLAST (w/NASA)
CDMS-II (w/NSF)
AMS (w/NASA)

PENDING STARTS

VERITAS (w/NSF, SAO)
AXION-II (w/NSF)

R&D

SNAP (LBNL, Michigan)
EXO (SLAC, Stanford)

